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Proof. The circles constituting the triangle shall be $c_1c_2c_3$, the inscribed circle c, while the escribed circles need not be named. Let c' be the circle tangent to c_1, c_2, c_3 which couples with c, *i. e.*, has either exactly the same contacts with all three, or exactly the opposite contacts. If c' reduce to a point, we may at once invert c_1, c_2, c_3 into three lines, and we have reached Feuerbach's theorem. If c' be not a point or a straight line (a case which we may avoid by a preliminary inversion) let N be a point on the axis of this circle at a radius's distance from the center. We take a sphere of inversion with N as center, passing through c'. The plane will invert into that sphere which has N for north pole and c' for equator, and our problem consists in proving Hart's theorem for the sphere, where the given circles touch the equator. We next make the simple transformation which consists in replacing each great circle by one of its poles, say that which lies in the northern hemisphere. This transformation carries a circle into a circle, and tangent circles into tangent circles. Hence we have merely to prove Hart's theorem on a sphere where the three given circles pass through the north pole. But if we repeat our previous inversion, the three circles through the north pole become three straight lines in the plane, and we are carried back to Feuerbach's theorem once more. Our proof of the dependence of the one theorem upon the other is, thus, complete.

A TRIBUTE TO JOHN HOWARD VAN AMRINGE.

In the death of Professor John Howard Van Amringe September 10, 1915, in his eighty-first year, there passed away from Columbia College one of the greatest men, and without doubt the most beloved man, ever connected with that venerable institution.

Born of Dutch parentage in Philadelphia in 1836 and prepared for college mainly by his father, he entered Yale in 1854. At the end of his sophomore year he transferred to Columbia College and was graduated from this institution with the degree of A.B. in 1860, at the age of twenty-four. So brilliant and many-sided were his native powers and his attainments that even before graduation he had been tendered an instructorship in no fewer than five widely diverse departments: Greek, Latin, history, chemistry, mathematics. He might with equal propriety have been invited into the department of English, had there been such a department at that time, for his extant writings, including many published addresses, show that he had a remarkable control over the resources of English speech.

He chose mathematics and this subject he taught till his resignation from Columbia University, October, 1909, after fifty years of service as teacher and many years of service as dean of the college. Why he chose this science I do not know, but, as President Butler has felicitously said, "There was something curiously appropriate in his choice of mathematics as the agency of his academic influence, for there was in it that rigor of demonstration and that accuracy of statement which marched so well with his sturdy uprightness, his straight thinking, and his unbending integrity; and there was also in it that beauty of expression, that perfection of form, that appeal to the imagination which reflected his literary power, his literary appreciation, and his splendid hold on written speech."

Van Amringe was a great teacher, especially of undergraduate men. He was never converted to a belief in coeducation. He did not believe in, and he did not employ, the lecture method with undergraduates. He was convinced that one of the great desiderata is to teach students to read solid books understandingly, and so he assigned them daily definite lessons in a chosen book and required them to report, usually in the form of classroom recitations. Idleness was not tolerated; industry and achievement were praised generously and discriminatingly. If a student, having tried, failed to understand, he was not overwhelmed by explanations, but was led, by the too rare art of skillful questioning and suggestion, into the presence of the truth. But it was not his method nor his subject that made Van Amringe a great teacher. The secret lay in his personality, deep, rich, sympathetic, generous, upright, sturdy and profoundly devoted to the higher things of the spirit. What Professor Van Amringe taught was men. With him mathematics was not an end; it was a means, an agency for making his presence and personality effective in the enlightenment and edification of young men. And he had his reward: the great and increasing gratitude, admiration, and love of generation after generation of students and colleagues, manifested continuously and everywhere in private and in public. Despite all this he preserved throughout that modesty, simplicity and democracy of spirit that we like to fancy essential in the character of a great man. Indeed, his successor in the office of Dean, Dr. Keppel, has justly characterized "Van Am" as "absolutely unspoilable."

Of technical mathematical ability, Professor Van Amringe had much. Fortunately, he did not devote it to mathematical research and publication, for, had he done so, he could not have rendered the manifold other services which he did render and which but few producers of mathematics are qualified to render. He did indeed edit a now obsolete series of the mathematical works of Davies, and in 1874 he published a valuable pamphlet on "The Theory and Practice of Life Insurance." But, in the main, his great abilities expressed themselves in other forms of service: as a powerful helper in the establishment and direction of the Columbia School of Mines; as a contributor towards the establishment and early conduct of graduate mathematical instruction in Columbia University; as first president, and subsequently as member of the council, of the American Mathematical Society; as the author of a history of Columbia College; as churchman and publicist in the matter of good counsel, especially in the management of hospitals and schools; as chief organizer, leader and stimulator of alumni associations; but above all and most joyously of all as an exemplar for a half century of how mathematics may be made the means of releasing the faculties of young men and winning their allegiance to rectitude of thought and life. Professor and Dean Van Amringe was one of the greatest figures in the collegiate history of American education.

C. J. KEYSER.

COLUMBIA UNIVERSITY.